Edited by

Brian Neville and Johanne Villeneuve

Waste-Site Stories

the recycling of memory

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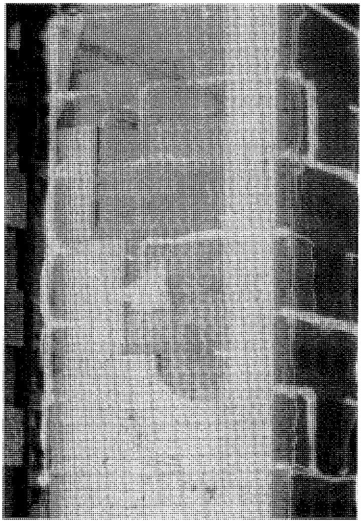

6

Agencies of Cultural Feedback

The Infrastructure of Memory

WOLFGANG ERNST

> These fragments I have shored against my ruins.
> —T. S. Eliot, *The Waste Land*

RECYCLING INSTEAD OF FINALITY: the linearity of production—accumulation—consumption—devaluation—waste is being replaced by closed circuits, forcing memory-based culture to decode itself anew.

We have to get used to the fact that the possibility of recycling now applies to everything—no longer annihilation, but recycling. All historical relics—empires, the Church, communism, democracy, ethnic identities, conflicts, ideologies—can be endlessly recycled. History has not only materially stepped out of cyclical time to enter the economic order of recycling (as in the recycling of industrial and nuclear waste), but the form of history itself—with its narratives implying linear development—has lost its compulsory evidence. Art is aesthetic recycling; postmodernism provided the complementary cultural theory. The infrastructure of recycling, though, is less discursive, less apparent, and less symbolic; its nonimaginary memory is the archive.[1]

ARCHIVES

The practice of history provides a given society with the tools and institutions for processing its documentary relics (books, texts, narratives, registers, records, techniques, architectures, rituals, etc.) in organized *forms of remanence*, monumentalizing them by law and with structures that transform the experience of time in protest against its passing.[2]

The idea of accumulating everything in a kind of general archive is a product of Modernity. Nevertheless, the archive is born of disorder;[3] the disorder of images that once characterized the sales rooms, artists' studios, and *dépôts* of old galleries makes sense once again from the perspective of chaos theory (the concept of entropy, as the second law of thermodynamics, has found its way into cultural analysis). Under the roof of a then-deserted (now burned down) warehouse on the Quai de la Seine, the studio of Parisian artist Pascal Kern represented such an interim step in the transition from art to archive: "A disorder of sorts reigns in the images Pascal Kern shows us, a disorder of objects, materials, allusions, in the image of the surroundings in which he lives and works upon memories of wandering and drifting in derelict places, like waste sites, abandoned houses, and factories."[4]

At the beginning of the nineteenth century, after the ruptures of tradition brought on by political and economic revolutions, a sense of loss created the discursive need for history in its emphatic sense. As a result of Napoleon's secularization of church property, vast archives were opened to the European public, which—like the delayed opening of the Vatican State Secret Archives around 1880—led to a sudden mass output of past data. Much of this data, decontextualized from its former surroundings, was immediately turned into waste paper; in fact, parchments were occasionally used as food packaging. As late as 1855, the Berlin newspaper *Vossische Zeitung* (no. 124, May 25) announced, under the rubric of "Miscellanea," the trial of an archivist at Nuremberg who had sold historic documents as waste paper and kept valuable *parergonal,* or supplementary, materials such as seals, copper, and wax. Attached to the immateriality of philological information is a material margin, which we tend to consider in the monumental terms of value, rather than in a documentary way. By concentrating hermeneutic attention on the meaning of the texts and channeling their semantics historiographically, that is, by mediating it in typography, the materiality of manuscripts, as writing supports, became, in a sense, redundant.[5]

To counter-balance the loss of contextualized meaning, a philosophical construct of an emphatic idea of history was needed, together with pragmatic institutions, such as the post–Napoleonic source-editing enterprise *Monumenta Germaniae Historica* in Berlin, sites for the storage of material artifacts, such as the *Germanisches Nationalmuseum* at Nuremberg, and magazines for all kinds of printed matter, such as the German Library at Leipzig (*Deutschen Bücherei*, from 1916). These institutions subjected desemioticized artifacts to a process of re-semiosis,[6] transforming the archaeological status of both texts and objects as monuments into documents of a history prefigured mainly in the narrative of the nation. At the same time, this symbolic registration and transformation made originals, in a sense, superfluous, once more condemning them to waste, since they would be symbolically preserved in other forms of writing. What transforms waste (monuments) into evidence (documents) is a hermeneutic operation, an archaeological act of historicization that turns, following Hegel's distinction between *Erinnerung* and *Gedächtnis*, exterior memory into meaningful remembrance. At work here are non-narrative, non-discursive *parerga* and regimes of description, such as signatures, inventories, and catalogues.

Prussian historian Leopold von Ranke put the confusing mass of Venetian diplomatic reports (*relazioni*, once the *feedback* medium of the republic's politics) in order by synecdochically recounting them as histories. What occurs in the guise of historical representation, that is, in temporalizing narrative, is in fact an effect of synchronization, of *cultural recycling*. The archival structures of information on the past converge in a radical presence of data; seen from an archival perspective, this kind of memory loses its association with a deep temporal dimension in favor of a cybernetic equation of past and present. Thus, we might say, *there is no memory*, unless inscribed metaphorically, that is, in spatial terms (as Ranke had done in describing the Venetian state archives).[7]

In the age of the Weimar Republic, the task of German archives, as defined by archivist Ernst Zipfel in 1926,[8] was the processing and storing of administrative documents in *real time*, in order to serve the needs of a democratic society. Between *memory* and the *real time analysis* of events, the archaeology of the present replaced history with an immediate archival *feedback*. The then director of the *Reichsarchiv*, Ernst Müsebeck, formulated the archival recycling of documents as a political task; he saw archives as a means to make governmental activity transparent. He actually asked that traditional archivists (usually medievalists) be replaced by professional "generalists."[9]

Today, electronic data processing provides storage and retrieval capacities that make it possible to actually *simulate the archive*. Instructions such as "memory" in the text-saving menus of computer software are a semantic archaism. In a way, these are not memories at all but data banks; the computer maintains the illusion of memory by translating its operations back into a language with which we are culturally familiar. The difference between presence and storage of data, though, is just a function of directing codes. In information technology, which governs the real, this difference has already been done away with; during the Gulf War, both missiles and news (about missiles) were in principle transmitted by similar (or the same) electronic rays. What we call memory is nothing but information scattered on hard or floppy disks, waiting to be activated and recollected into the system of data processing. *Monitoring*, as data representation, is nothing but a recursive move in respect to the human reader, the terminal being a *museal* display space against a background of archaeological silence (the silence of algorithmically computing numbers).

ARCHAEOLOGY

In 1869, architect and engineer J. T. Wood identified the temple of Artemis, one of the ancient wonders of the world, in the once Greek, now Turkish city of Ephesos. Wood managed to excavate parts of the ruins to secure fragments for the British Museum—*columnae caelatae*, figurative bases of columns from the period prior to and after the burning of the temple: "But the effort of raising these huge pieces of sculpture from such a depth led to an utter disregard of the plan of the temple as a whole, a problem which was never correctly solved."[10] Waste is not only the subject of the archaeological inquiry into the architecture of the past but also the result of a de(con)struction inherent to archaeological practice itself. The hunt for trophies is blind to structures, leaving possible evidence of (immaterial) relations in disorder: "Since then this site . . . has remained a desolate waste. A recent visitor expressed himself thus: '. . . Better to have left it covered than create such damage.'"[11]

Archaeological artifacts are immediately subjected to a semiotic gaze that turns them into decipherable historic documents,

> a database which, for the most part, has undergone a change of state by virtue of its very entry into the domain of the discipline. From *in situ* and unknown, to removed and researched, before it has any impact on knowledge, the evidence has largely lost its original integrity. Its meaning rests only in the information attached to it in the form of associated records.[12]

The act of registration, of inscription and contextualization, relates to the object in a *parergonal* way, transforming it from waste into a semiophor.[13] David Crowther differentiates between two kinds of artifact attributes: intrinsic (material, decoration) and relative (context, history, function). It is at this point that the material defect of semiotics, with respect to the materiality of the support, becomes apparent. In a way, their status as waste preserves artifacts, but this *memory of waste* is being destroyed in the very act of recalling it to hermeneutic attention by excavation:

> This change of state is more than just conceptual, it is physical. Material once in a state of equilibrium with its burial environment, be it waterlogged wood or copper alloy from a dry site, will begin to deteriorate unless elaborate steps are taken to secure its welfare. Such a resource is therefore in constant jeopardy and requires long-term care and management to minimize its inevitable devaluation and decay. It is a measure of the direct social relevance of archaeology that the repositories for its raw material, semi-digested or otherwise, should be public institutions whose principle functions are the provision of a cultural service.[14]

Up to now, archaeology has snatched cultural-historical values from the soil to supply museum storerooms; today, industrial and rubbish archaeology analyzes the present in *real time.* Memory is not immediately linked to the past but rather becomes radically present—present not in a historical but in an archaeological sense. Only by interpretative supplements, such as discursive texts, is evidence being transformed into the memory of a cognitive past.

The increase in archaeological disorder is the law of history as physics of time (Bolzmann). Close to the Mediterranean harbor of Alexandria, maritime archaeologists appear recently to have traced the fragments of another ancient wonder of the world; seven meters beneath the surface of the water, they have discovered a landscape littered with blocks of stone, which could be reread as the relics of its lighthouse (the *Pharos*). But it requires historical discourse, that is, narrative, to make sense of a heap of blocks. In Palestine, such stones are charged with multiple meanings; the fragments are not inherently gifted with any memory whatsoever but are linked to memories in conflicting perceptions.[15]

The aggregation of waste in archaeology is the deposit. What is required is a hypertextual rather than a narrative processing of such data, the return of the transparency of the palimpsest and the consequent relinquishing of the paradigm of hi/story in favor of archaeology proper—"the configuration of a space-as-information-model, within a historical context."[16] R. Boast and D. Chapman apply such a hypertextual model to excavation reports, visualizing the interrelationships between recorded and interpretative information entities:

> Archaeological interpretation has always referred ultimately to deposition. . . . Deposit is the basic constituent of all archaeological constructions by the nature of the record. Archaeologists do not have access to events, but to the depositional consequences of events. This creates a primacy of deposition and stratigraphy to which all other data must ultimately relate.[17]

Archimagination turns data clusters into decipherable patterns. The excavation of the prehistoric urban dwelling of Catalhöyük, on the Anatolean plateau, overseen by Cambridge University (and recently concluded under Ian Hodder), led to the discovery of all sorts of ornamental figures on artifacts, which raised the open question of whether these were evidence of pure aesthetic play or encoded messages requiring pattern recognition. The electronic video documentation of the excavation was provided by the Academy of Design and the Center for Art and Media Technology at Karlsruhe. This kind of digital memory serves purposes of both documentation and virtual reconstruction through computer animation; as such, it effaces the traditionally substantial difference between registration (the archive) and imagination (virtual reality), with the wire-frame model in archaeological sampling serving as mediator.[18]

Archaeology is a science which, in order to gain knowledge, has to simultaneously destroy its own body of evidence; the cost of cultural historical memory is the production of waste. Being exposed to all kinds of light and weather by excavation, the excavated structures are exposed to further ruination. Archaeology is, then, the science of waste; sampling is its method and basic operation, since its findings are always already latent, waiting to be recycled.[19] Historical imagination is dependent on figuration; the archaeological *waste land* does not provide (in terms of rhetorical figures) t(r)opological landmarks for such imagination. The perception of archaeological data clusters is being seduced by and to historical imagination—first in the medium of narrative and its institutional setup (the museum) and recently by *virtual reality*—as though the past, as history, had not always already been just that.

From the years 205 to 208, Emperor Septimius Severus provided for the public display of a marble ground plan of the city of Rome. Only since 1562 has the memory of the fragmented *pianta marmorea* been restored, step by step; Bellori edited some fragments in 1673, under the title *Fragmenta vestigii veteris Romae*. Archaeology has made countless efforts to reconstruct the whole plan, but perhaps its fragmentary state is a more adequate representation of reality than any imaginary totality: "The city of today is no longer characterized by hierarchies and differences: it appears as a set of disconnected fragments. At the same time, architects can no longer make use of those instruments of urban control that originated with the modern era."[20]

The modern desire for planning and ordering the ancient map of Rome is constantly undermined by archaeological *monumenti non localizzati* and *frammenti con topografia non identificata*; in the epigraphical index to the publication of the remaining fragments, even the first letters of inscribed words are occasionally missing, thereby thwarting the possibility of ordering knowledge alphabetically. What the visitor gets is an attempted reconstruction, a kind of *rhizome* on the interior court walls of the present *Museo Capitolino*; only the taxonomic museum medium can try to make memory out of relics. "Rome, as it now exists, has grown up under the Popes, and seems like nothing but a heap of broken rubbish, thrown into the great chasm between our own days and the Empire, merely to fill it up," as one American put it.[21]

Alternatively, archaeology practices *cluster analysis*—a non-discursive statistical technique and the true *memory of waste*. The *Monte Testaccio* in Rome is exclusively composed of fragments of ancient vessels (amphorae); its archaeological *cluster analysis* does not strive for aesthetic values, such as specimens of ancient art, but rather it provides a data bank on ancient economy. German archaeologist Heinrich Dressel discovered this informational value in a first dig in January 1872, subsequently registering and publishing the ancient trademark stamps from the vessel fragments on forty-five pages of the venerable *Corpus Inscriptionum*

Latinarum—Roman past means mass data, whether as town or as empire: a veritable *Read Only Memory*. Those digs have resumed: "With all the fiscal information it contains, painted on fragments of the oil amphorae, it constitutes the only economic archive of the Roman Empire."[22] Information is what counts: "the documentary value is the chief result." The computer transforms the materiality of broken, inscribed pieces into the immateriality of information: "While stamps and inscriptions, imprinted and painted on the pottery fragments, are turning into information 'bits', the decipherings of their meaning, the features associating them, the people and activities they hint at, remain the most intriguing theme of the research."[23]

"There is a pile of sand, but no history":[24] The entropy of traces is a case for archaeology, which outstrips the capacities of historical imagination. Here the computer disposes of a better memory of waste on which to *count*; only its calculating operations are able to make sense out of the apparent chaos. Waste is the sublime catastrophe of imagination, which only the sublime mathematics of a difference machine can restore to visualization by a computing called *imagineering*, that is, the metonymic transformation of non-intuitive data into graphics. Thomas Quarry proclaimed it from Casablanca in an advertisement for IBM:

> A sliver of bone revealed a chunk of history when Dr. Jean-Jacques Hublin unearthed a few fossilized skull fragments. Then Dr. Hublin and a team of IBM scientists fed this shattered jigsaw puzzle into a unique program called Visualization Data Explorer. The tiny pieces helped form an electronic reconstruction of our early ancestor, the first *homo sapiens*. This new IBM technology has turned time back 400,000 years, uncovering clues to the origins of mankind.[25]

Calculation beyond human cognition is capable of solving the riddles of the past. The computer has restored the Sphinx in front of the pyramid of Cheops in detail; Mark Lehner of the Oriental Studies Institute at the University of Chicago, Illinois, has superimposed photographs of the Sphinx with portraits from the statues of pharaohs; through photogrammetric composite pictures, he has reconstructed the most probable archetype of the Sphinx, which might bear the features of Pharaoh Chefren (fourth dynasty). Over centuries, the figure had been buried by the blowing sands; around 1400 B.C.E., the Sphinx was unearthed and restored by Pharaoh Thutmosis IV (according to an ancient text, the Sphinx had spoken to the sovereign, then a prince, promising him the throne of Egypt if only he would remove the sand).

Do archaeological ruins still speak? In 1896, A. S. Murray visited the ancient site of Ephesos and reported on its entropic state: "The entire area was overgrown with vegetation, and the few visible remains were lying about in such confusion that no definite plan could be distinguished."[26] This is a kind of disorder that human capacities of *pattern recognition* can no longer decipher; only as data arrays, and only in a different architecture, can these traces once more become legible—the *architexture* of chips and information systems. The ruin of the former *Frauenkirche* cathedral, one of the casualties of the Second World War bombardment of the city of Dresden, is currently being transformed into a serial magazine of shelves, storing the array of individual stones currently being registered digitally by computer programs, in order to reconstruct the building from its scattered elements. The virtual reality of the *Frauenkirche* is *interval* memory, memory *in the meantime.*[27] The same is true of a project undertaken by the Parisian *École française d'Extrême Orient,* envisaging the reconstruction of the 900-year-old ancient Baphuon temple of Angkor in Kambodia. For that purpose, around 500,000 stones, scattered about the ruin, have to be restored to their previous emplacement. An infographics company provides three-dimensional photographs for the computer modeling of the temple, which then provide a conceptual grid in which to insert the fragment.[28] Once again, the computer provides a better memory of waste than does historical, that is, human, imagination. Every religious service repeats the Judeo-Christian injunction to remember ("Do this in the name of my remembrance") at the moment of the transubstantiation of the Holy Spirit; this imperative can now be programmed. But however virtually objects can be saved from destruction, we may exclaim with Chandler: "We now seek the Temple in vain; the city is prostrate, and the goddess gone."[29]

While most classic industrial zones in Europe are presently being transformed into open-air museums of the Industrial Age, these areas are suffering severely from a very different kind of tangible heritage: the burden of waste disposal and soil contamination over the last 200 years, a kind of memory that is difficult to deal with in aesthetic ways. In fact, museums of industrial heritage function as a distraction from actual industrial legacies, that is, the contaminated soil as a chemical store. Soil, industrial fallow land, is the true tragic archive. For an example of storage as semiotic challenge, Thomas Sebeok has asked how a depository of nuclear waste can be made noticeable for future generations, ones that may no longer be acquainted with the current alphanumerical code.[30]

How to collect waste? The classical rhetorics of *recollection,* described by Frances Yates as an *Art of Memory,* corresponded to the order of the museum. The (public) museum's space for historically internalized cultural recollection is spatially separated from its (hidden) storage space. Whereas Hegel, in his *Phenomenology of Spirit,* made this correspondence an element of the philosophy of history, Walter Benjamin broke with such assumptions; and where Hegel considers the process of digestive remembrance to be the interiorization of the past *(Er-Innerung),* Benjamin associates a contrary exteriorization of the self, which explodes the confines of its private interiority with involuntary memory:

> The "disorder" of this anarchic *Bildraum* (which, if spatial, is anything but homogeneous) dislocates the orderly "gallery of images." The *Weltgeist* passes in review the procession of its "monuments," the *Geister*, which successively "relieve" one another after their respective turns of duty.[31]

MEMORY/INFORMATION/MEDI@RCHAEOLOGY

Owing to a semiosis that turns materialities and corporealities into immaterialities and pure information, the explosion of media has contributed to a radical transformation of the relation of objects to time and space. In the age where speed brings about the disintegration of the categories of space and time, and where dematerialized information is stocked in recording systems in real time, places such as the museum become nostalgic retro-effects.

If culture, according to Juri Lotman and B. A. Uspenski, is defined by its capacities to transform the inclination toward oblivion into memory,[32] then the growing predominance of intermediary storage *(Zwischenlager)* contributes to a radical transformation of the economy of history. The ideal of accumulation is part of the humanist legacy: to Renaissance readers, the letter of the text was latent energy waiting to be activated by the act of reading-as-interpretation; this notion is being replaced by circulation, to borrow a New Historicist term, by recycling "mnemonic energies" (Aby Warburg). The paradox is that the electronic *media* create (falsely, technically speaking) the illusion of an immediate access to the past. Around 1900, this treasure had become partially dead capital. UI Order No. 43, of January 9, 1905—issued by F. Althoff, of the Prussian Ministry of Education, to the Director General of the Royal Library in Berlin and to the directors of Prussian university libraries—requested that "dead books" be stored apart from contemporary collections, or that out-of-use books even be destroyed.[33]

In fact, capital strives to minimize the temporal extent of storage (which is, thus, "dead capital"); by a supply-demand relationship aiming at real time, the electronic supply system of the Benetton company virtually programs its storage time to zero. Electronic random access to the stores turns memory into the omnipresence of commodities. What looks like a by-product of this recycling is in fact the establishment of a new *epistemé*, the standardization of knowledge, which is technically concealed, while producing a cult of cultural difference on the surface.

What will happen to the "memory of waste" under conditions of electronic storage, when the hermeneutic instrument for differentiating between value and rubbish in things to be stored is abolished in order to make place for a cybernetic register of non-hierarchical hypertexts? The electronic age succeeds in erasing the opposition between monumental inscription and discursive flow.

Precision and fast variability exist side by side; digital codes are able to register and undo those registers in virtual real time.[34] The analysis of the restructuring of our relationship to the past has to be as fast as its object; to achieve this, negotiation with what we perceive as past has to be freed from the supremacy of historical discourse, which has controlled such negotiations for the last 200 years. What is needed under postmodern conditions is the free accessibility to storage spaces.

The computer is not interested in the analytical laws of identity and difference but rather in algorithms to master data. Thinking must assume the form of computing: combining and devaluating the semiotic status of representation. The stable relation between sign and reference will be undone in favor of juxtaposing signs—which has already been the spatial principle of museums, archives, and libraries. Argumentation is being replaced by notation.[35] But, against the hypertextual euphoria of free navigation through data landscapes, and the liberation of the text from Gutenberg-era bulwarks against the seemingly arbitrary and endless shift of signifiers, our attention should be directed to the kind of barriers that arrest such flow in a nonarbitrary way, restrictions such as passwords. Engineering of memory involves hierarchical modularization; each module strives at hiding as much information about its own processing as possible—*information hiding*.[36]

The restructuring of our relationship with the past (Hegel's *Aufräumarbeiten*) undoes the supremacy of historical discourse, which for such a long time has distracted attention from the recursive practice of information storage. Feedback, replacing linearity, declares a moratorium on narrative.

> An "information sickness"—caused by the speed and quantity of what impinges on us, and abetted by machines we have invented, that generate endless arrays—threatens to overwhelm personal memory. The individual, we complain, cannot "process" all this information, this incoming flak. . . . Can public memory still be called memory, when it is increasingly alienated from personal and active recall?[37]

What will happen to the art of memory when mass media—with their accent on selecting current documentation—tend increasingly to privilege the present over the past? The digitization of images decouples them from their denotative reference in real archives; *memory* is being transformed cybernetically into synchronic information networks. This decontextualization has been put forward already by analogue techniques of reproduction (e.g., photocopy).

We have come to the point where the world no longer experiences itself in terms of life evolving in time but rather as a network interfering with itself; a Cartesian net of coordinates requires the transformation of aesthetics into computable discourse analysis. Storage replaces expansion; the placement of items is being defined by its relations and described formally in terms of arrays, trees, and grids. The ordering of coded elements, their distribution in structures, or at random, becomes a function of memorial capacities. Demography makes this challenge transparent: we have arrived at an epoch where space is represented in terms of storage relations.[38]

The Internet has turned the notion of the archive into a metaphor for *data retrieval*:

> It was soon realized that each site providing its own anonymous *ftp* area with its own material would make it difficult to find and catalogue the available information. The answer to this problem was to provide archives; machines dedicated to the task of serving files via anonymous *ftp*. These archives collect together material from other anonymous *ftp* areas scattered through the Internet and present it in a single location.
>
> The job of the archive maintainers is to keep the archives up-to-date and to try and organise them in an orderly fashion.[39]

Registers of symbolic memory (museums, archives, libraries) are about to lose touch with the digital cybernetics of information storage, consequently turning cultural memory itself into a museum space.

The electronic archive no longer emphatically differentiates between memory and waste. There is no technical distinction between sense and nonsense, syntax and semantics; the spacing of *différance*, of delay of perception, is being annihilated. Opening spaces of reflection, of suspense, of *epoché*, may turn out to be the function of the museum, as opposed to the accelerated processing of data today. Now that the real space of the museum has lost its pride of place as the most advanced storage medium, in matters of cultural and image memory (i.e., in its function as the "mass medium" of the nineteenth century) it must reconsider its role. Having become an institution and, as such, reached its genealogical end, the museum—the classical terminal for parcel post from the history of art and culture—must now redefine itself anew with respect to aging storage techniques. In such a way, it is becoming the place of reflection on its own successor technologies. The demand upon the museum is thus pointing the way to mobilizing the accumulation of the depot, making it publicly accessible, as well as recycling stored stocks in the exhibition area. The memory, the basis (store), of the museum is liquefying, therefore, its depot increasingly reflects the switching technique of its successor media.

Memory can no longer be grasped in spatial metaphors (which, to date, has been the rationale of museological inventories and catalogues[40]); aesthetic stores turn into cybernetic units and administrative monitoring. The *Depôt légal* in Paris, where a copy of every publication is obligatorily kept, is no longer serving library purposes but its non-discursive double. In the galleries of defunct mines, the military archives of Freiburg have set up a microfilm store; here copies exist of all sorts of relevant administrative and cultural-historical documents of the Federal Republic of Germany, in the event of a nuclear attack on the original: the origin of memory is here the anticipation of war. Stores also mean delaying death. *Réserves*: under that very title, artist Christian Boltanski once installed and stacked metal boxes, filled with photos of victims of the Holocaust, with loudspeakers murmuring the names of the dead—counting numbers instead of telling narratives. Memory is passing from narrative space to digital computation, escaping from the figurative deception on which historical imagination is dependent.

Still, electronic data banks are not the death of imaginary memory. Though basing the representation of storage on the flawless use of stored information, they do not exclude play. The digital archive may merely aim at storing information; the energetic texture of memory, though, is based on counter- and disinformation, which amounts to a memory of waste.[41]

NOTES

1. This chapter is based in part on my article "Arsenale der Erinnerung," in the exhibition catalogue *SPEICHER: Ein Versuch über die Darstellbarkeit von Geshichte/n* (Linz: Offenes Kulturhaus Linz, 1993), 63–72—for a Dutch and an English adaptation, see "Arsenalen van de Herinnering"/"Arsenals of Memory," in *Mediamatic* 8:1 (1994): 1913–1920—and on my paper "Zwischenlager: Feedback Museum," read at the symposium *Feedback: Das Phänomen der Rückkopplung in Kunst und Wissenschaft*, organized by Giannozzo Kunstverein (Berlin) in the old monastery of Plasy (Czech Republic), September 2–4, 1994.

2. Hannes Böhringer, program text for the conference *Feedback*, op. cit.

3. See Arlette Farge, *Le goût de l'archive* (Paris: Seuil, 1987).

4. Bernard Marcadé, in the exhibition catalogue *Fictions colorées* (Paris: Zabriskie Art Gallery, 1985), n.p. (my translation).

5. See Wolfgang Struck, "Geschichte als Bild und als Text: Historiographische Spurensicherung und Sinnerfahrung im 19. Jahrhundert," in *Zeichen zwischen Klartext und Arabeske*, edited by Susi Kotzinger and Gabriele Rippl (Amsterdam and Atlanta: G. Rodopi, 1994), 349–61. The twentieth annual report of the *Germanisches Nationalmuseum*, January 1, 1874, reports on the acquisition of ancient parchments in order to prevent them from being sold as waste paper.

6. See Uwe Jochum, "Das tote Gedächtnis der Bibliothek," in *Verband der Bibliotheken des Landes Nordrhein-Westfalen: Mitteilungsblatt* 45: 4 (1995): 64, 66.

7. Leopold von Ranke, *Studien und Portraits zur italienischen Geschichte*, edited by Willy Andreas (Wiesbaden and Berlin: Vollmer, 1957), ch. 2, "Die Verschwörung gegen Venedig im Jahre 1618"; see esp. pp. 86–90, "Neue Quellen—Das Venezianische Archiv."

8. Angelika Menne-Haritz, "Das Provenienzprinzip—ein Bewertungssurrogat? Neue Fragen zu einer alten Diskussion," in *Der Archivar* 47:2 (1994): 231.

9. Ibid., 232ff., referring to, Ernst Müsebeck, "Der Einfluß des Weltkrieges auf die archivalische Methode," lecture on the 20th *Deutscher Archivtag*, Danzig, 1928, in *Archivalische Zeitschrift* 38 (1929): 144.

10. Adolf Michaelis, *A Century of Archaeological Discoveries* (London: John Murray, 1908), 103.

11. Ibid.

12. David Crowther, "Archaeology, Material Culture, and Museums," in *Museum Studies in Material Culture*, edited by Susan M. Pearce (London: Leicester University Press, 1989), 42.

13. For a discussion of the semiophor as an artifact, understood in an allegorical as opposed to a pragmatic sense, see Krzysztof Pomian, *Collectors and Curiosities: Paris and Venice, 1500–1800*, translated by Elizabeth Wiles-Portier (Cambridge: Polity Press, 1990).

14. Crowther, op cit., 42.

15. See the documentary film by Bernard Mangiante, *Galilée—au nom des pierres* (France, 1995).

16. Lily Díaz, "A Simultaneous View of History: The Creation of a Hypermedia Database," in *Leonardo* 28: 4 (1995): 257.

17. R. Boast and D. Chapman, *Archeologia e calcolatori* 2 (1991): 221–22.

18. Heinrich Klotz, "Zivilisation der Steinzeit," in *Frankfurter Allgemeine Zeitung*, October 28, 1995.

19. See Roger S. Schofield, "Sampling in Historical Research," in *Nineteenth-Century Society: Essays in the Use of Quantitative Methods for the Study of Social Data*, edited by E. A. Wrigley (London: Cambridge University Press, 1972), 146–90.

20. Anna di Noto et al., *Metamorfosi* 1–2, thematic issue "Città archeologica/città contemporanea" (April–August 1985): 92.

21. Nathaniel Hawthorne, quoted in Henry Sussman, "*The Marble Faun* and the Space of American Letters," in *Glyph Textual Studies* 1 (1986): 131. Free from Eurocentric ballast, the American knows how to see things; Sussman writes: "Hawthorne repeatedly described Rome as a heap of concentrated and somewhat excremental junk, anticipating a fundamental concern with garbage on the part of such twentieth-century writers as T. S. Eliot, Ezra Pound, and Wallace Stevens."

22. José Blazquez Martinez, cited in Stelio Martini, "Un archivio ignorato nel Monte delle Anfore," in *Roma* 39, anno V (1992): 22 (my translation).

23. Ibid., 26ff.

24. Theodor Mommsen, *Römische Kaisergeschichte: Nach den Vorlesungsmitschriften von Sebastian und Paul Hensel 1882/86*, edited by B. u. A. Demandt (Munich: Beck, 1992).

25. *Wired* 3:03 (March 1995), n.p.

26. Quoted in David George Hogarth, Preface, *Excavations at Ephesus: The Archaic Artemisia* (London: British Museum, 1908), n.p.

27. See Edmund Hug's article, "Letztlich eine Frage der Architektur," on the CeBIT '94 fair at Hannover, in *Frankfurter Allgemeine Zeitung*, May 15, 1994.

28. "Steine mit dem Computer sortieren," in *Frankfurter Allgemeine Zeitung*, April 12, 1995.

29. Quoted in Edward Falkener, *Ephesus, and the Temple of Diana* (London: Day and Son, 1862), 346.

30. Thomas Sebeok, "Pandora's Box: How and Why to Communicate 10,000 Years into the Future," in *On Signs: A Semiotics Reader*, edited by Marshall Blonsky (Oxford: Basil Blackwell, 1985), 448–66.

31. Irving Wohlfarth, "Walter Benajmin's Last Reflections," in *Glyph* 3 (1978): 189.

32. Jurij M. Lotman und B. A. Uspenskij, "Zum semiotischen Mechanismus der Kultur," in *Semiotica Sovietica* 2 (1986): 859.

33. See Hartwig Lohse, "Tote und 'scheintote' Literatur," in *Bücher für die Wissenschaft: Bibliotheken zwischen Tradition und Fortschritt*, edited by Gert Kaiser (Munich: K. G. Saur, 1994), 143–58.

34. See Aleida Assmann, "Fest und flüssig: Anmerkungen zu einer Denkfigur," in *Kultur als Lebenswelt und Monument*, edited by Aleida Assmann and Dietrich Harth (Frankfurt: Suhrkamp Verlag, 1991), 181–98, n. 18.

35. Martin Groß, "Ein neuer Buchtyp: das bibliographische Bulletin," in *Ästhetik und Kommunikation* 18:67–68 (1987):4–6, n. 5.

36. Entry "Software-Engineering," in *Schüler Duden: Die Informatik*, edited by Meyers Lexikonredaktion, scientific editing by Volker Claus and Andreas Schwill, 2d ed. (Mannheim: Dudenverlag, 1991), 473.

37. Geoffrey Hartman, "Public Memory and Its Discontents," in *RARITAN* 24 (1994): 24.

38. See Michel Foucault, "Other Rooms," in *Essential Works*, vol. 2, edited by James Faubion, translated by Robert Hurley et al. (London: Penguin Books, 2000), 175–85.

39. "Information and archives on the Internet," http://www.hensa.ac.uk/www94/internet.html.

40. See Thomas Ketelsen, *Künstlerviten, Inventare, Kataloge: Drei Studien zur Geschichte der kunsthistorischen Praxis* (Ammersbek: Lottbek Jensen, 1988), part II and III.

41. Henri-Pierre Jeudy, "Die Musealisierung der Welt oder Die Erinnerung des Gegenwärtigen," in *Ästhetik und Kommunikation* 18:67–68 (1987): 23–30, esp. 35.